

CONTRIBUTIONS TO THE BRYOPHYTE FLORA OF TURKEY: II

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This second account enumerates the bryophytes collected by Dr. P. H. Davis in South-Eastern Turkey in 1954. As in the previous paper (Henderson & Muirhead, 1955) new records for the Turkish flora are distinguished by an asterisk. The nomenclature of mosses is that required by the use of Hedwig's *Species Muscorum* (1801) as a starting point; the Check List of British Mosses (Richards & Wallace, 1950) has been relied upon for most of this revision.

The most marked feature of this collection is the preponderance of species of the Arctic and the mountain ranges of Eurasia; examples are *Distichium capillaceum*, *Timmia norvegica*, *Brachythecium trachypodium* and *Hypnum vaucheri*. These species occur in association with more typically "mediterranean" taxa as *Scorpiurium deflexifolium*, *Cratoneuron filicinum* var. *fallax* and *Philonotis calcarea* var. *orthophylla*. This collection again emphasises that the bryophyte flora of the area is merely a modified European type and that, contrary to the position in the flowering plants, there seems to have been no extensive development of endemic taxa.

Where a different name has been used from that in the first paper on Turkish bryophytes, the latter name has been added in brackets to facilitate cross-reference.

POLYTRICHEAE

Polytrichum juniperinum Hedw.

PROV. BITLIS: Süphan Dağ, above Adilcevaz, 4300 m., soil pockets on steep north scree, 27 Aug. 1954, 24679.

DICRANACEAE

Distichium capillaceum (Hedw.) B. & S.*

PROV. HAKKÂRI: Cilo Dağ, 10 km. W. of Cilo Tepe, 3500 m., on shady limestone cliffs, 9 Aug. 1954, 24171; *ibid.* 24173.

PROV. BITLIS: Süphan Dağ, above Adilcevaz, 4300 m., moist soil pockets on steep north scree, 27 Aug. 1954, 24681 (with *Tortula ruralis* and *Hypnum revolutum*).

PROV. VAN: dist. Başkale; İspiriz Dağ, 3400 m., shady rocks, 31 July 1954, 23766 (with *Brachythecium collinum* and *Bryum* sp.).

POTTIACEAE

Tortula ruralis (Hedw.) Crome (*Syntrichia ruralis* Brid.).

PROV. BITLIS: Süphan Dağ, above Adilcevaz, 4300 m., moist soil pockets on steep north scree, 27 Aug. 1954, 24681a (with *Distichium capillaceum* and *Hypnum revolutum*).

PROV. HAKKÂRI: Cilo Dağ, in Diz deresi, 1680 m., limestone rocks, 6 Aug. 1954, 24011 (with *Orthotrichum cupulatum* and *Barbula rigidula*); Cilo Dağ in Diz deresi, 1700 m., by river, 6 Aug. 1954, 23874a (with *Hypnum vaucheri*).

Tortula intermedia (Brid.) Berk.

PROV. BITLIS: Süphan Dağ, above Adilcevaz, 4300 m., soil pockets on steep north scree, 27 Aug. 1954, 24680 (with *Hypnum vaucheri*).

Barbula rigidula (Hedw.) Mitt.

PROV. HAKKÂRI: Cilo Dağ, in Diz deresi, 1680 m., limestone rocks, 6 Aug. 1954, 24011b (with *Orthotrichum cupulatum* and *Tortula ruralis*).

Barbula recurvirostris (Hedw.) Dix. (*Erythrophyllum rubellum* (Hoffm.) Loeske).

PROV. VAN: dist. Hoşap; Kepir Dağ, 2900 m., by stream, 30 July 1954, 23334 (with *Mniobryum carneum* and *Brachythecium trachypodium*).

PROV. HAKKÂRI: Cilo Dağ, 10 km. W. of Cilo Tepe, 3500 m., on shady limestone cliffs, 9 Aug. 1954, 24171a (with *Distichium capillaceum*, *Timmia norvegica*, *Bryum caespiticium* and *Brachythecium collinum*).

Gymnostomum aeruginosum Sm.

PROV. HAKKÂRI: Cilo Dağ, in Diz deresi, 5700 m., on limestone rocks, 6 Aug. 1954, 23875.

GRIMMIACEAE

Grimmia laevigata (Brid.) Brid.

PROV. VAN: dist. Şatak; Kavuşşahap Dağ, 2800 m., dry metamorphic rocks, 24 July 1954, 23083.

Grimmia commutata Hübner

PROV. VAN: dist. Şatak, Kavuşşahap Dağ, 2800 m., dry metamorphic rocks, 24 July 1954, 23083.

BRYACEAE

Pohlia drummondii (C. M.) Andrews*

PROV. BITLIS: Süphan Dağ, 4000 m., moist hollow with *Luzula*, 28 Aug. 1954, 24698a (with *Drepanocladus aduncus*).

Pohlia albicans (Wahl.) Lindb.*

PROV. VAN: dist. Hoşap; Kepir Dağ, 2900 m., by stream, 30 July 1954, 23335.

Pohlia delicatula (Hedw.) Grout*

PROV. VAN: dist. Hoşap; Kepir Dağ, 2900 m., by stream, 30 July 1954, 23334a (with *Barbula recurvirostris* and *Brachythecium trachypodium*).

Bryum turbinatum (Hedw.) Sm.*

PROV. HAKKÂRI: Cilo Tepe, 3200 m., flushes by stream, 8 Aug. 1954, 24089.

Bryum schleicheri Schwaegr.*

PROV. HAKKÂRI: Cilo Tepe, 3200 m., wet rocks, 8 Aug. 1954, 24088.

Bryum caespiticium Hedw.

PROV. HAKKÂRI: Cilo Dağ, 10 km. W. of Cilo Tepe, 3500 m., on shady limestone cliffs, 9 Aug. 1954, 24171c (with *Distichium capillaceum*, *Timmia norvegica*, *Barbula recurvirostris* and *Brachythecium collinum*).

Bryum funckii Schwaegr.*

PROV. VAN: dist. Şatak; Kavuşşahap Dağ, 3200 m., by rill, 23 July 1954, 23201.

MNIACEAE

Mnium punctatum Hedw.

PROV. ORDU: Karakuş (above Üniye), 1200 m., damp shady bank in *Fagus* forest, 5 Sept. 1954, 24943.

BARTRAMIACEAE

Philonotis calcarea (B. & S.) Schp.

PROV. HAKKÂRI: Kara Dağ, 3200 m., by stream, 15 Aug. 1954, 24381; *ibid.* 24389a (with *Marchantia polymorpha*); *ibid.* 24355.

var. **orthophylla** Schiffn.

PROV. HAKKÂRI: Cilo Tepe, 3100 m., on wet volcanic rocks, 8 Aug. 1954, 24090.

This variety appears to be restricted to Asia Minor. It was originally described from Turkey (Schiffner, 1897), and is also recorded from Turkey by Schiffner (1913).

TIMMIACEAE

Timmia norvegica Zett.*

PROV. HAKKÂRI: Cilo Dağ, 10 km. W. of Cilo Tepe, 3500 m., on shady limestone cliffs, 9 Aug. 1954, 24171d (with *Distichium capillaceum*, *Bryum caespiticium*, *Barbula recurvirostris* and *Brachythecium collinum*).

ORTHOTRICHACEAE

Orthotrichum cupulatum Brid.

PROV. HAKKÂRI: Cilo Dağ in Diz deresi, 1680 m., limestone rocks, 6 Aug. 1954, 24011a (with *Tortula ruralis* and *Barbula rigidula*).

FONTINALACEAE

Fontinalis antipyretica Hedw.

PROV. HAKKÂRI: Koçanis, 2300 m., on stone in stream, 13 Aug. 1954, 24336.

THUIDIACEAE

Thuidium abietinum (Brid.) B. & S.

PROV. TOKAT: Tokat-Artova, in oak scrub, 4 Sept. 1954, 24863 (with *Camptothecium lutescens*).

HYPNACEAE

Cratoneuron filicinum (Hedw.) Roth

PROV. HAKKÂRI: Cilo Dağ, above Diz deresi, 2400 m., flush, 7 Aug. 1954, 23964a (with *Cratoneuron commutatum*).

var. **fallax** (Brid.) Moenk.*

PROV. VAN: 5 km. N. of Şatak, in rivulet, 25 July 1954, 23251.

Cratoneuron decipiens (De Not.) Loeske*

PROV. HAKKÂRI: Kara Dağ, 3000 m., flush, 15 Aug. 1954, 24382.

Cratoneuron commutatum (Hedw.) Roth

PROV. BITLIS: mountain 10 km. S.E. of Pelli, 2200 m., flushes, 8 July 1954, 22588.

PROV. HAKKÂRI: Cilo Dağ, above Diz deresi, 2400 m., flush, 7 Aug. 1954, 23964, 23965.

var. **falcatum** (Brid.) C. Jens.

PROV. HAKKÂRI: Kara Dağ, 2850 m., by stream, 15 Aug. 1954, 24380, Cilo Dağ, above Diz deresi, 2400 m., flush, 7 Aug. 1954, 23966.

PROV. VAN: dist. Şatak; Kavuşşahap Dağ, 2700 m., in rills, 23 July 1954, 23202.

Drepanocladus aduncus (Hedw.) Warnst.

PROV. BITLIS: Süphan Dağ, 4000 m., moist hollow with *Luzula*, 28 Aug. 1954, 24698 (*Pohlia drummondii*); *ibid.*, 24699.

Drepanocladus capillifolius (Warnst.) Roth var. **dichelymoides** Roth & Bock

PROV. BITLIS: Nemrut Dağ, 2200 m., in crater lake in 1 ft. of water, 3 July 1954, 23571.

This collection is exactly like *Dichelyma capillaceum* macroscopically but the leave are not three-ranked as in the genus *Dichelyma*. The variety *dichelymoides* of *Drepanocladus capillifolius* was described from Central Europe and does not appear to have been extensively recorded. *Drepanocladus capillifolius* is generally considered to be a polyphyletic taxon produced by convergent evolution from a number of distinct species. Be this as it may, it is probably preferable to record under a well-defined name as I have done rather than transfer the variety to one of the generally accepted "basic" species of *Drepanocladus*—transfers which could only be justified by extensive revisionary work preferably combined with cultural experiments.

Acrocladium cuspidatum (Hedw.) Lindb.

PROV. HAKKÂRI: Koçanis, 2500 m., by stream, 13 Aug. 1954, 24335.

Scorpiurium deflexifolium (Solms) Fleisch. & Loeske

PROV. HAKKÂRI: Cilo Dağ, 10 km. W. of Cilo Tepe, 3600 m., cracks of shady limestone cliff, 9 Aug. 1954, 24172.

Camptothecium lutescens (Hedw.) Brid.

PROV. TOKAT: Tokat-Artova, in oak scrub, 4 Sept. 1954, 24863a (with *Thuidium abietinum*).

Brachythecium rivulare (Bruch) B. & S. var. **turgescens** Warnstorf*

PROV. BITLIS: Mt. 10 km. S.E. of Pelli, 2200 m., flushes, 8 July 1954, 22587.

Brachythecium trachypodium (Bridel) B. & S.

PROV. VAN: dist. Hoşap; Kepir Dağ, 2900 m., by stream, 30 July 1954, 23334b (with *Barbula recurvirostris* and *Pohlia delicatula*).

Brachythecium collinum B. & S.

PROV. HAKKÂRI: Cilo Dağ, 10 km. W. of Cilo Tepe, 3600 m., on shady limestone cliffs, 9 Aug. 1954, 24171b (with *Distichium capillaceum*, *Barbula recurvirostris*, *Timmia norvegica* and *Bryum caespiticium*).

PROV. VAN: dist. Başkale; İspiriz Dağ, 3400 m., shady rocks, 31 July 1954, 23766a (with *Distichium capillaceum*).

Hypnum vaucheri Lesq.*

PROV. BITLIS: Süphan Dağ, above Adilcevaz, 4300 m., soil pockets on steep north scree, 27 Aug. 1954, 24680a (with *Tortula intermedia*).

PROV. HAKKÂRI: Cilo Dağ in Diz deresi, 1700 m., by river, 6 Aug. 1954, 23874 (with *Tortula ruralis*).

Hypnum revolutum (Mitt.) Lindb.

PROV. BITLIS: Süphan Dağ, above Adilcevaz, 4300 m., moist soil pockets on steep scree, 27 Aug. 1954, 24681b (with *Distichium capillaceum*) and *Tortula ruralis*).

MARCHANTIACEAE

Marchantia polymorpha L.

PROV. HAKKÂRI: Kara Dağ, 3000 m., in flush, 15 Aug. 1954, 24389.

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